1. Course Details:

Course Code : ICPE-015
Course Title : Process Control and Instrumentation
Course Duration : 5 Days

2. Course Overview:

- Course will cover areas pertaining to the instrumentation, basic concept of control system and components (sensors, input/output elements, controllers, final control elements) of surface facilities. Specific instrumentation and controls for pressure, temperature, flow, level, density, control valve, and field data acquisition systems will be covered.This course will go on to explain the basic working principles, measuring devices, operations, and specifications of surface facilities.

3. Learning Outcomes:

- Operate the most common measuring process parameters
- Demonstrate the ability to properly set up a transmitter to measure pressure, flow, level and temperature
- Define and apply control concepts including self-regulating and non-self-regulating processes, positive/negative feedback and process time constant

4. Course Contents:

- Process control principles
- The control loop function and constitution of control loops and on-off control systems. Pneumatic, electrical and digital loops
- Power supply, signal transmission via tubes, cables, bus, optical fibers. Instrument symbols main types of instrument
- Tags and symbols. External devices/ sensors accuracy and tuning of measuring devices
- Temperature measurement: temperature scales, non-electrical thermometers, electrical measuring devices
- Pressure measurement: measurement units, devices for local reading or for transmission, pressure gauge installation. Flow measurement: measurement units, head meters, other principles and devices: electromagnetic and ultrasonic meters, vortex effect, Coriolis effect
- Control loop implementation of various control loop elements based on simulated examples of increasingly complex process functions
- Application to simple loops, cascade control systems, split-range combinations, fractionation, calculated variable and feed forward control systems. Simple assignments group discussion

- Level measurement: level glass, float-actuated and displacer devices. Other principles and devices: radioactive, capacitance, ultrasonic and radar devices, differential pressure cells
- Transmitters / control valves transmitters pneumatic, electric, digital and tele programmable transmitters
- Typical control valves technology and operation. Safety positions.
- Rotating gate valves, three-way valves and others. Different types of valve plugs, real characteristics on a circuit
- Positioners operating principle, pneumatic and electro pneumatic positioners
- Controllers basic function of a controller
- Introduction to Increase-decrease mode Concepts of feedback and performance of feedback systems P, PI, PID controllers and Simple PID tuning

5. Our Methodology:

- Make coaching and monitoring innovative and using modern
- Media training also using on the go training by using interactive means and focusing on
- The exercises, practical applications and real situations study.
- Live delivery method, instructor-led training.
- Experienced consultant, trainers, and professional.
- Qualified trainer with high-level experience

6. Attendance Reports:

- Send daily attendance reports to trainingdep
- Send full attendance report to training dep. by the end of thecourse
- Attend 100 % from the course days also providedaily
- Issue attendance certificate for participant who attend minimum 80% from the course duration

7. Pre/Post Reports:

- Pre- assessment before starting training.
- Post assessment after finish training
- Full report for the deferent between Pre-& Post assessment

8. Who Should Attend?

- Instrumentation and control personnel including general maintenance personnel
- Plant managers and supervisors

- Control and instrumentation
- Technicians and engineers
- Automation engineers
- Electricians and general engineers